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10/814,408	03/31/2004	James R. Lattner	2002B139/2	5396

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EXAMINER	
LEUNG, JENNIFER A	

ART UNIT	PAPER NUMBER
1764	

DATE MAILED: 09/29/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/814,408	LATTNER, JAMES R.	
	Examiner	Art Unit	
	Jennifer A. Leung	1764	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *24 and 30-32* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *24 and 30-32* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *31 March 2004* is/are: a)☐ accepted or b)☒ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *3-31-04; 5-3-04*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Drawings

1. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they do not include the following reference sign(s) mentioned in the description:

None of the reference numbers recited in sections [0113] to [0116] of the specification (pages 32 and 33) are not labeled in Figure 1.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claims 24 and 30-32 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Regarding claim 24, "said riser reactor" (lines 3+) lacks proper positive antecedent basis, because "a riser reactor" is merely recited in the intended use clause of the preamble. Also, the

"solid catalyst particles" (line 5) lack proper positive antecedent basis, because it is unclear as to where the catalyst particles originated from in the apparatus. Also, it is unclear as to the structural relationship of "a regenerator catalyst inlet" and "a regenerator catalyst outlet" (lines 19 and 20) to the regenerator. Furthermore, it is unclear as to the structural limitation applicant is attempting to recite by, "said regenerator further comprising a catalyst transport line running downwardly from a lower portion of said disengaging vessel to a regenerator catalyst inlet" (lines 18-20) because it appears that the disengaging vessel comprises the catalyst transport line, since the catalyst transport line originates from the disengaging vessel.

Regarding claim 30, the language of the claim is drawn to a method limitation which renders the claim vague and indefinite, because the measuring of said riser reactor temperature is not considered an element of the apparatus. The Examiner suggests rephrasing the body of the claim to read, --wherein said riser reactor comprises a temperature sensor for measuring said riser reactor temperature, located at a point ranging from 30% to 40% of said riser reactor length, as measured from said feed inlet of the riser reactor--.

Regarding claim 31, the language of the claim is drawn to a method limitation which renders the claim vague and indefinite, because "said function of riser reactor temperature" is not considered an element of the apparatus. The Examiner suggests rephrasing the body of the claim to read, --wherein said riser reactor comprises a temperature sensor for measuring a reactor mid-temperature, located at a single location between about 20% to about 80% of the axial length of the reactor--.

Regarding claim 32, the language of the claim is drawn to a method limitation which renders the claim vague and indefinite, because "said function of riser reactor temperature" is not

considered an element of the apparatus. The Examiner suggests rephrasing the body of the claim to read, --wherein said riser reactor comprises a temperature sensor for measuring a rate of temperature rise, located along a portion of the reactor--.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

3. Claims 24 and 30-32 are rejected under 35 U.S.C. 103(a) as obvious over Lattner et al. (US 6,023,005) in view of Hofferber et al. (US 4,092,722).

Regarding claim 24, Lattner et al. (FIGURE) discloses an apparatus comprising:

a feed line **12** communicating with a riser reactor feed inlet to a riser reactor **14**, the riser reactor further comprising a riser reactor outlet **16** for riser reactor effluent;

a preheater through which the feed line **12** passes for at least partially vaporizing the feed by heat exchange (i.e., "methanol feed **12** is at least partially vaporized in a preheater (not shown)," column 5, line 67 to column 6, line 1);

a disengaging vessel **18** receiving the riser reactor effluent **16**, the disengaging vessel comprising a disengaging vessel outlet **20** at an upper portion of the vessel for removing vapor;

a catalyst circulation line (coked catalyst line **22**) running downward from a lower portion of the disengaging vessel **18** to a lower portion of the riser reactor **14**;

a regenerator **24** comprising a lower inlet (line **30** for REGEN AIR) and an upper outlet (a line, not numbered, for FLUE GAS), said regenerator **24** further comprising a catalyst

transport line (stripped, coked catalyst line **23**) running downwardly from a lower portion of the disengaging vessel **18** to a regenerator catalyst inlet, and a catalyst transport line (a line, not labeled, communicating with catalyst cooler **26**) extending downwardly from a regenerated catalyst outlet and intersecting with a lift gas riser **28**; said lift gas riser **28** having an upper outlet communicating (indirectly, via riser reactor **14**) with the disengaging vessel **18** and a lower lift gas inlet (i.e., "... regenerated catalyst **28** may be lifted to the reactor **14** by means of an inert as, stem, or methanol vapor (not shown)," column 6, lines 44-46); and

a regenerator catalyst circulating control valve (i.e., the valve illustrated in line **28**, not numbered) controlling the passage of catalyst from the regenerated catalyst outlet to said lift gas riser **14**.

Although Lattner is silent as to the preheater being of the type that uses a flowing fluid heating medium for at least partially vaporizing the feed, it would have been obvious for one of ordinary skill in the art at the time the invention was made to select such a preheater for vaporizing the feed **12** in the apparatus of Lattner et al., on the basis of suitability for the intended use, because the Examiner takes Official Notice that the use of preheaters having a flowing fluid heating medium (e.g., steam) for vaporizing feeds is well known in the art of heat exchange, and it has been held that the substitution of known equivalent structures involves only ordinary skill in the art. *In re Fout* 213 USPQ 532 (CCPA 1982); *In re Susi* 169 USPQ 423 (CCPA 1971); *In re Siebentritt* 152 USPQ 618 (CCPA 1967); *In re Ruff* 118 USPQ 343 (CCPA 1958).

Lattner et al. is silent as to the regenerator catalyst circulation control valve (in line **28**) being manipulated as a function of riser reactor temperature.

Hofferber et al. (FIG. 1; column 4, line 30 to column 5, line 65) teaches an apparatus comprising a riser reactor (riser pipe **3**, with a disengaging vessel portion **1**) in communication with a regenerator (labeled as CATALYST REGENERATOR) via a catalyst transport line **8** comprising a regenerator catalyst circulating control valve **9** for controlling the passage of catalyst from the regenerator to the riser reactor **3** as a function of riser reactor temperature, as measured by a temperature sensor (thermocouple **13**).

It would have been obvious for one of ordinary skill in the art at the time the invention was made to configure the apparatus of Lattner et al. such that the regenerator catalyst circulation control valve was manipulated as a function of riser reactor temperature, because controlling the flow of regenerated catalyst from the regenerator to the riser reactor according to a measured temperature of the riser reactor allows for the automatic maintenance of an approximately constant temperature both in the riser and in the reactor vessel or regenerator bed, as taught by Hofferber et al. (column 2, lines 20-33).

Regarding claims 30-32, as can be seen in FIG. 1 of Hofferber et al., the temperature sensor **13** is located along a portion of the riser reactor **3**, which appears to be at a point lying within the range of from about 30% to about 40% of the riser reactor length, as measured from the feed inlet **4** of the riser reactor **3**, or at a location between about 20% to about 80% the axial length of the reactor **3**. Although these range values are not specifically stated in the disclosure, it would have been obvious for one of ordinary skill in the art at the time the invention was made to select a suitable location for the temperature sensor in the modified apparatus of Lattner et al., on the basis of suitability for the intended use, because the shifting of location of parts is obvious, and it has been held that where the general conditions of a claim are disclosed in the

prior art, discovering the optimum or workable ranges involves only routine skill in the art, *In re Aller, 105 USPQ 233.*

4. Claims 24 and 30-32 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hirsch et al. (US 2,892,773) in view of Hofferber et al. (US 4,092,722).

Regarding claim 24, Hirsch et al. (FIG. 1) discloses an apparatus comprising:

a feed line (residual hydrocarbon charge lines **30**) communicating with a riser reactor feed inlet (inlet lines **12**) to a riser reactor (reactor **10a, 10b**), the riser reactor further comprising a riser reactor outlet (outlet lines **14**) for riser reactor effluent;

a preheater (not shown) through which the feed line **30** inherently passes (i.e., "... the reactors **10a** and **10b** are maintained at a temperature... by *suitable preheating of the residual oil charged to the unit...*" column 5, lines 31-35);

a disengaging vessel (hopper **16**) receiving the riser reactor effluent from lines **14**, the disengaging vessel **16** comprising a disengaging vessel outlet (via line **20**) at an upper portion of the vessel for removing vapor;

a catalyst circulation line **26, 26a, 26b** running downward from a lower portion of the disengaging vessel **16** to a lower portion of the riser reactor **10a,10b**;

a regenerator **40** comprising a lower inlet (line **42**) for introducing a regeneration medium, an upper outlet (line **44**) for regenerator flue gas, said regenerator **40** further comprising a catalyst transport line (standpipe **38**, communicating with line **59**) running downwardly from a lower portion of the disengaging vessel **16** to a regenerator catalyst inlet, and a catalyst transport line (well **53**) extending downwardly from a regenerated catalyst outlet and intersecting with a lift gas riser (defined by transfer line **58**); said lift gas riser **58**

having an upper outlet communicating with the disengaging vessel **16** and a lower lift gas inlet (line **64**); and

a regenerator catalyst circulating control valve **60** controlling the passage of catalyst from the regenerated catalyst outlet of regenerator **40** to said lift gas riser **58**.

Although Hirsch et al. is silent as to the preheater being of the type that uses a flowing fluid heating medium for at least partially vaporizing the feed, it would have been obvious for one of ordinary skill in the art at the time the invention was made to select such a preheater for vaporizing the feed in the apparatus of Hirsch et al., on the basis of suitability for the intended use, because the Examiner takes Official Notice that the use of preheaters having a flowing fluid heating medium (e.g., steam) for vaporizing feeds is well known in the art of heat exchange, and it has been held that the substitution of known equivalent structures involves only ordinary skill in the art. *In re Fout* 213 USPQ 532 (CCPA 1982); *In re Susi* 169 USPQ 423 (CCPA 1971); *In re Siebentritt* 152 USPQ 618 (CCPA 1967); *In re Ruff* 118 USPQ 343 (CCPA 1958).

Hirsch et al. is silent as to said regenerator catalyst circulation control valve **60** being manipulated as a function of riser reactor temperature.

Hofferber et al. (FIG. 1; column 4, line 30 to column 5, line 65) teaches an apparatus comprising a riser reactor (riser pipe **3**, with a disengaging vessel portion **1**) in communication with a regenerator (labeled as CATALYST REGENERATOR) via a catalyst transport line **8** comprising a regenerator catalyst circulating control valve **9** for controlling the passage of catalyst from the regenerator to the riser reactor **3** as a function of riser reactor temperature, as measured by a temperature sensor (thermocouple **13**).

It would have been obvious for one of ordinary skill in the art at the time the invention

was made to configure the apparatus of Hirsch et al. such that the regenerator catalyst circulation control valve **60** was further manipulated as a function of riser reactor temperature, because controlling the flow of regenerated catalyst from the regenerator to the riser reactor according to a measured temperature of the riser reactor allows for the automatic maintenance of an approximately constant temperature both in the riser and in the reactor vessel or regenerator bed, as taught by Hofferber et al. (column 2, lines 20-33).

Regarding claims 30-32, as can be seen in FIG. 1 of Hofferber et al., the temperature sensor **13** is located along a portion of the riser reactor **3**, which appears to be at a point lying within the range of from about 30% to about 40% of the riser reactor length, as measured from the feed inlet **4** of the riser reactor **3**, or at a location between about 20% to about 80% the axial length of the reactor **3**. Although these range values are not specifically stated in the disclosure, it would have been obvious for one of ordinary skill in the art at the time the invention was made to select a suitable location for the temperature sensor in the modified apparatus of Hirsch et al., on the basis of suitability for the intended use, because the shifting of location of parts is obvious, and it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art, *In re Aller, 105 USPQ 233.*

Double Patenting

The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to

overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

5. Claims 24 and 30-32 are provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 45-57 of copending Application No. 10/325,523 in view of Hofferber et al. (US 4,092,722).

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

The claims of copending application 10/325,523 substantially recite the "oxygenates to olefins fluidized bed reactor apparatus" as instantly claimed. The copending application, however, is silent as to the apparatus comprising a "regenerator catalyst circulation control valve" for controlling the passage of catalyst from the regenerator to the riser reactor as a function of reactor temperature, as measured by a temperature sensor at the recited locations.

Hofferber et al. (FIG. 1; column 4, line 30 to column 5, line 65) teaches an apparatus comprising a riser reactor (riser pipe **3**, with a disengaging vessel portion **1**) in communication with a regenerator (labeled as CATALYST REGENERATOR) via a catalyst transport line **8** comprising a regenerator catalyst circulating control valve **9** for controlling the passage of catalyst from the regenerator to the riser reactor **3** as a function of riser reactor temperature, as measured by a temperature sensor (thermocouple **13**).

It would have been obvious for one of ordinary skill in the art at the time the invention was made to provide a regenerator catalyst circulation control valve for controlling the passage of catalyst from the regenerator to the riser reactor as a function of reactor temperature in the

apparatus of copending application 10/325,523, because controlling the flow of regenerated catalyst from the regenerator to the riser reactor according to a measured temperature of the riser reactor allows for the automatic maintenance of an approximately constant temperature both in the riser and in the reactor vessel or regenerator bed, as taught by Hofferber et al. (column 2, lines 20-33).

As can be seen in FIG. 1 of Hofferber et al., the temperature sensor **13** is located along a portion of the riser reactor **3**, which appears to be at a point lying within the range of from about 30% to about 40% of the riser reactor length, as measured from the feed inlet **4** of the riser reactor **3**, or at a location between about 20% to about 80% the axial length of the reactor **3**. Although these range values are not specifically stated in the disclosure, it would have been obvious for one of ordinary skill in the art at the time the invention was made to select a suitable location for the temperature sensor in the modified apparatus of copending application 10/325,523, on the basis of suitability for the intended use, because the shifting of location of parts is obvious, and it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art, *In re Aller, 105 USPQ 233.*

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jennifer A. Leung whose telephone number is (571) 272-1449. The examiner can normally be reached on 8:30 am - 5:30 pm M-F, every other Friday off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Glenn A. Caldarola can be reached on (571) 272-1444. The fax phone number for

the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Jennifer A. Leung
September 24, 2005

Hien Tran

HIEN TRAN
PRIMARY EXAMINER